

ATTY. DKT. NO. 215177.00101  
CUSTOMER NO. 27160

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: James J. Hickman

Examiner: M. P. Allen

Serial No.: 09/575,377

Art Unit: 1631

Filed: May 22, 2000

For: HIGH THROUGHPUT FUNCTIONAL GENOMICS

DECLARATION UNDER 37 C.F.R. §1.132

Commissioner for Patents

Washington, DC 20231

Sir:

I, Prof. James J. Hickman, Ph.D., do hereby make the following declaration:

1. I received a PhD from MIT on September 19, 1990. I also have both an MS and BS degree from the Pennsylvania State University.
2. I am currently Hunter Chair of Biomaterials at Clemson University.
3. I have read the specification and pending claims of the above-identified patent application and have studied each of the Office Actions issued by Examiner Allen. I am familiar with the publication by Jung et al., J. Vac. Sci. Technol. A 16(3), pp. 1183 - 1188 (May/June 1998), of which I am a co-author, and familiar with the field of technology it involves.
4. I understand from Office Actions issued in this case that the Examiner is asserting that the cell-based sensor described in Jung et al. has a microelectrode with an intervening layer as claimed; that is, a sensor having a surface-modifying agent positioned between the microelectrode and the cells that provides a high impedance seal with the cells.
5. I understand that as part of the process of reconsidering rejected claims, the Examiner will take into consideration the evidence provided in this declaration as to what the structure of the Jung et al. device is, provided that this information

would have been understood by a person of ordinary skill in the art from reading the publication itself.

6. The Examiner has pointed out that Figures 6 (a, b) of Jung *et al.* appear to be the same as Figures 1A and 1B of the present application, and she has questioned whether this fact indicates that the sensors in the publication are the same as the claimed sensors. It does not. While its true that these figures are identical, it is not true that Figures 1A and 1B of this application show data from a sensor having the claimed intermediate layer.

7. One can see from the Jung *et al.* publication that the sensor has a different structure than the present invention. The published sensor contains an array of 32 gold microelectrodes accessed by means of 14  $\mu\text{m}$  diameter *vias* through a 1  $\mu\text{m}$  thick insulating silicon nitride top layer, all residing on a silicon base.

8. The Jung *et al.* sensor was made with a silane self-assembled monolayer (SAM), but that did not result in the claimed structure because the microelectrode in Jung *et al.* was platinized using platinum black which is used to lower the impedance of the microelectrodes, and also means that the silane SAM would have formed only on the silicon nitride top layer (the insulator), not on the microelectrode. This is because the silane could not have reacted with the platinized surface due to the absence of any hydroxyl groups. Furthermore, even if the platinizing reaction had been incomplete, gold microelectrodes would not have reacted with the silane to form an intervening SAM either.

9. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: 6-30-03

By:   
Prof. James J. Hickman

Docket No.: 215177.00101  
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SUPPLEMENTAL DECLARATION

As a below named inventor, I hereby declare that:

My residence, post office and citizenship is as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) of the subject matter claimed and for which a patent is sought on the invention entitled **HIGH THROUGHPUT FUNCTIONAL GENOMICS**, the specification of which was filed with the U.S. Patent and Trademark Office on May 22, 2000, as U.S. Patent Application No. 09/575,377;

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is known to me to be material to patentability in accordance with Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT international application which designated at least one country other than the United States, listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

| <b>Prior Foreign Application(s):</b> |                | <b>Priority Claimed</b>     |                      |
|--------------------------------------|----------------|-----------------------------|----------------------|
| <u>Number</u>                        | <u>Country</u> | <u>Day/Month/Year filed</u> | <u>Yes</u> <u>No</u> |
| NONE                                 |                |                             |                      |

I hereby claim the benefit under 35 USC §119(e) of any United States provisional application(s) listed below.

| <b>Prior Provisional Application(s):</b> | <b>Filing Date</b> |
|------------------------------------------|--------------------|
| <u>Application Number</u>                | <u>Filing Date</u> |
| 60/135,275                               | May 21, 1999       |

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or Section 365(c) of any PCT international application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

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**Prior U. S. Application(s):**

**Serial No.**

NONE

**Filing Date Status: Patented, Pending, Abandoned**

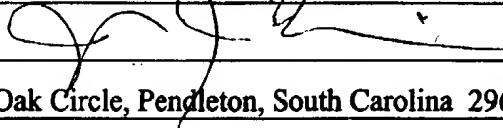
The undersigned hereby grants the firm of KATTEN MUCHIN ZAVIS ROSENMAN the power to insert on this Declaration any further identification, including the application number and filing date, which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

All future correspondence should be addressed to:

**27160**  
**KATTEN MUCHIN ZAVIS ROSENMAN**  
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Full name of first inventor: James J. Hickman, Ph.D.

Inventor's signature: 

Date: 8-24-03

Residence: 125 Grand Oak Circle, Pendleton, South Carolina 29670

Citizenship: United States of America

Post Office: Same as above

The Patent Office acknowledges, and has stamped hereon, the date of receipt of the items listed below:

In re Application of: James J. Hickman

Mail Stop RCE

U.S. Patent Appin. No. 09/575,377

Group Art Unit: 1631

Filed: May 22, 2000

Examiner: Marianne P. Allen

FOR: HIGH THROUGHPUT FUNCTIONAL GENOMICS

1. Response to Communication
2. Declaration Under 37 C.F.R. §1.132
3. New executed Supplemental Declaration

☐ Charge to  
Deposit Acct 50-1710

☒ Charge any deficiencies in fees or credit any overpayment to  
Deposit Acct. 50-1710

Atty Dkt. No. 215177.00101  
GMV/RWH/GB/

DATE: September 17, 2003

